BIOGRAPHY 12.

# KELVIN MEDAL

to André Blondel

1929

REPORT OF THE PROCEEDINGS
AT THE PRESENTATION ON
NOVEMBER 5th, 1929

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ANDRÉ BLONDEL
KELVIN MEDALLIST 1929

ANDRÉ BLONDEL was born at Chaumont (Haute-Marne) in 1863. He received his early education at Dijon and passed through l'Ecole Polytechnique and l'Ecole Nationale des Ponts et Chaussées, where he obtained the first rank. He graduated at the Universities of Paris and Dijon in 1889, and in that year was appointed engineer in the Department of Ponts et Chaussées. From 1890 to 1927 he was engaged in the lighthouse service of that Department, successively with the titles of Ingénieur-en-Chef and Inspecteur-Général des Ponts et Chaussées. From 1904 he has been Professor of Applied Electricity at l'Ecole Nationale des Ponts et Chaussées.

During his long association with the lighthouse service, he was instrumental in introducing many important and far-reaching changes in the methods of optical, acoustical and wireless signalling on the coasts of France. His early researches into the applications of electricity were directed to problems relating to the electric arc, in connection with which he carried out an exhaustive series of experiments prior to 1897. These led him to study the measurement of electrical quantities and to develop the art of photometry, upon which he has long been a leading authority. His investigations have been extended to the advancement of theory and practice in relation to the generation of electrical energy, the development of turbo-alternators and variable speed motors, electric traction, wireless telegraphy, the lines of transmission for the utilization of water-power, and the oscillation and regulation of prime movers. His published contributions to the science of electrical engineering have been extensive, and to his credit may be placed a number of inventions, including the oscillograph for measuring the instantaneous value of an electric current (1893), the holophane globes (1893), for which he was awarded the John Scott Medal of the Franklin Institute, and the radiogoniometer (1903).

He was awarded in 1921 a Montefiore Prize at Liege, and in 1922 the Rouville Quinquennial Prize of the French Ministry of Public Works, and the first triennial Mascart Medal of the French Society of Electrical Engineers.

He presided over, or served as a member on, a number of Committees and Commissions, both national and international, and in recognition of his services was elected Membre de l'Académie des Sciences in 1913, and was made a Commander of the Order of the Crown of Italy in 1923, and a Commandeur de la Légion d'Honneur in 1928. He was also elected President d'Honneur of the Société Française des Electriciens (1913), of the Comité National Français de l'Eclairage (1927), and of the Conférence Internationale des Grands Réseaux de Distribution d'Energie (1921–1929), and Honorary Member of both the British and American Institutions of Electrical Engineers.

# KELVIN MEDAL, 1929

On Tuesday, the 5th November, 1929, at 5 p.m., the presentation of the Kelvin Medal was made in the Great Hall of the Institution of Civil Engineers, by Sir Donald MacAlister of Tarbert, Bart., K.C.B., Chancellor of Glasgow University.

His Excellency M. A. de Fleuriau, G.C.V.O., the French Ambassador, received the Medal on behalf of M. André Blondel, to whom it had been awarded, but who was unable to attend for reasons of ill-health.

Sir Brodie H. Henderson, K.C.M.G., C.B., President of the Institution of Civil Engineers and Chairman of the Kelvin Medal Award Committee, occupied the Chair.

# REPORT OF PROCEEDINGS AT THE PRESENTATION

Sir BRODIE HENDERSON: Your Excellency, Ladies and Gentlemen: In July, 1913, a window which had been placed in Westminster Abbey to the memory of Lord Kelvin was unveiled by Sir Robert Elliott-Cooper, then President of the Institution of Civil Engineers, on behalf of the engineers of the British Empire and of the United States of America who had contributed towards the memorial fund, which was organized by a General Committee representative of nineteen British and American engineering institutions.

The cost of the window did not absorb the whole of the amount subscribed, and the Executive Committee of the memorial fund decided that the balance should be applied to the establishment of a Kelvin Gold Medal, to be awarded triennially as a mark of distinction in engineering work or investigation of the kinds with which Lord Kelvin was especially identified.

The Institution of Civil Engineers accepted the trust and administration of the medal fund, and it was decided that the award should be dealt with by a Committee in London, consisting of the Presidents for the time being of the following Institutions, after their consideration of recommendations received from similar bodies in all parts of the world:—

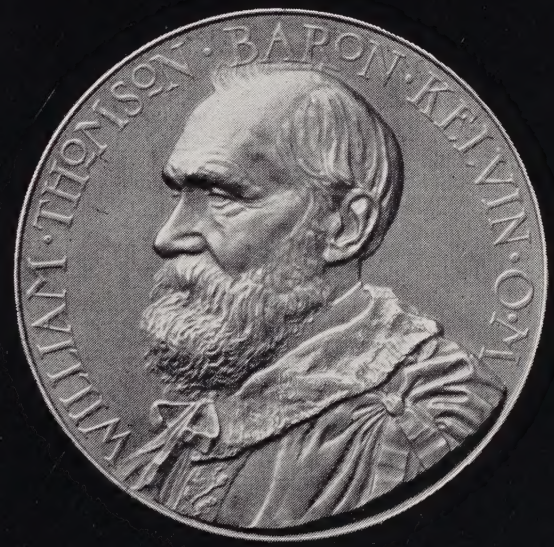
The Institution of Civil Engineers,
The Institution of Mechanical Engineers,
The Institution of Electrical Engineers,
The Institution of Naval Architects,
The Iron and Steel Institute,
The Institution of Mining and Metallurgy,
The Institution of Mining Engineers,
The Institution of Engineers and Shipbuilders in Scotland.

The award of the first Kelvin Medal was delayed by reason of the war, and it was not until 1920 that the first award was made, to Dr. W. C. Unwin, F.R.S. (Great Britain). The second award was made in 1923 to Professor Elihu Thomson, D.Sc. (U.S.A.), and the third in 1926 to the Hon. Sir Charles A. Parsons, O.M., K.C.B., F.R.S. (Great Britain). The Kelvin Medal for this year has been awarded to Monsieur André Blondel (France). (*Applause.*)

It is with great regret that I have to inform you that Monsieur Blondel is unfortunately unable, owing to ill health, to attend here and receive the Medal. I am sure we all wish him a speedy return to normal health and a long life of continued usefulness to his fellows. (*Applause.*) We are honoured by the presence this afternoon of His Excellency the French Ambassador, who has very kindly consented to receive the Medal on Monsieur Blondel's behalf. (*Applause.*)

Sir Donald MacAlister has kindly consented to make the presentation. You all know that Sir Donald was for many years, and until quite recently, Principal and Vice-Chancellor of Glasgow University, where Lord Kelvin carried out his brilliant researches. I am sure you are all very pleased to hear that Sir Donald has just been elected Chancellor of that University, a position formerly occupied by Lord Kelvin himself. (*Applause.*) I will now ask Sir Donald to make the presentation on behalf of the Committee.

Sir DONALD MACALISTER: Mr. President, Your Excellency, Ladies and Gentlemen: I have, as you have heard, been entrusted with the highly honourable duty of delivering to you, Your Excellency, as the distinguished representative in this country of the French nation, this emblem of high scientific distinction awarded, *propter merita*, to a very eminent son and faithful servant of France, Monsieur André Blondel. This Medal has been founded, as you have heard, by the engineers of nineteen societies, as an international memorial of one whose fame is international, the late


WILLIAM · THOMSON · BARON · KELVIN · O.M.

FOUNDED · BY · ENGINEERS · 1914
IN · MEMORY
OF · BARON · KELVIN
OF · LARGS
ENGINEER · AND
NATURAL
PHILOSOPHER
BORN · 1824 · DIED · 1907

Lord Kelvin. It derives its significance from the glory attaching to his name. I presume it is because it was my happy privilege to be associated, however humbly, for some thirty years with Lord Kelvin and his work, and was appointed by him twenty-two years ago to be his deputy as Vice-Chancellor of the University of Glasgow, and was only the other day, as the President has mentioned, elected by its graduates to be Lord Kelvin's successor as Chancellor of the University, that I have the honour of being asked to take a formal part in the presentation of Lord Kelvin's Medal to you, Your Excellency, for transmission to your famous fellow-countryman, who we all regret is unable, owing to the state of his health, to receive it in person. You will, therefore, kindly attribute the selection of myself for this duty partly to the friendly partiality of the awarding Committee, the representatives of all branches of engineering science within the United Kingdom, and partly to its natural desire to maintain, if only in form, a cherished association with the University of Glasgow, which is rendered illustrious as a place of scientific learning and research by the life-long labours and discoveries of Lord Kelvin, its Professor of Natural Philosophy for over fifty years, and until 1907 its beloved and world-famed Chancellor.

Between the University which I represent and the French nation there are other ties which we value and treasure. There is the old alliance between Scotland and France, which led so many of our students to seek knowledge in that country rather than in the then hostile England, and which made it possible also—a fact of which we are very proud—in the Middle Ages for some dozen of our Glasgow scholars to become Rectors of one or other of the famous French Universities. That alliance was consecrated anew and immeasurably widened by the new and greater Franco-British alliance of this century, of which the fruits in victory and in peace are still being slowly garnered for the common good of the world. (*Applause.*)

It was that new and greater alliance which, as you will

remember, in 1914 led our Glasgow students to elect Monsieur Raymond Poincaré as Rector of our University, and that alliance was celebrated with triumph on the occasion when you, Your Excellency, were also present, during the official visit of the President of the French Republic to take up his office in 1919 as the official Chairman of the University Court. His visit then, accompanied by his friends and colleagues, his very memorable rectorial address, and his gracious personality, remain with us as cherished possessions, for they won us all.

The Kelvin Medal has been awarded, as you have heard, on but three previous occasions since its foundation. In the first instance it was presented to Dr. Unwin, who is happily still with us, the venerable and venerated doyen of British engineering. Three years later its international character was vindicated by its award to Professor Elihu Thomson, leader and pioneer in applied science in the United States of America. On the last occasion it fell to my old fellow-student of St. John's College, Cambridge, the Hon. Sir Charles Parsons, the founder of the greatest new departure in steam propulsion since the days of James Watt of Glasgow. These all applied and extended the principles which guided Lord Kelvin's scientific life and work, for that is one of the conditions of the award, namely, the exploration and discovery of the laws of nature by mathematical investigation and physical experiment, and the immediate and fruitful application of these to the service of man.

In Monsieur Blondel we find the like principles and practice illustrated and embodied. Exact measurement, exact observation, deep reflection, clear inference—these we find, of course; but all subserving prompt and effective application. It is this last characteristic which constitutes the special glory of the engineer, but it is the former which constitutes him an "original" engineer, that enables him to open new but sure paths for further progress and higher utilities in which others may follow with assurance and profit.

Monsieur Blondel, like Lord Kelvin at Glasgow and Cambridge, graduated in the fundamental disciplines of mathematics and physics; but these in his case also were not an end in themselves; they were a means, to be thoroughly mastered, indeed, but only as a means to a further end. Lord Kelvin, like Monsieur Blondel, would have hesitated—nay, refused—to pledge the toast which is said to have been current in certain Cambridge circles of his time, the toast of "Pure Mathematics: may they never be of any use to anyone!" (*Laughter.*) No; when he devised instruments of precision for the measurement of hitherto-intangible electric quantities or for the harmonic analysis of varying oscillations (as Monsieur Blondel has followed him in devising), it was not merely for the purpose of supplying data to fill gaps in his equations; it was with the definite purpose of predicting, and therefore of turning to practical service, the actions of half-understood forces, and of directing and controlling them for human uses.

Monsieur Blondel worked out, in a similar spirit and with a similar aim, in electricity and in the new science of electrical oscillations, with its marvels of wireless telegraphy and telephony and signalling through the ether generally, methods and devices which would have delighted the soul of Lord Kelvin, and in so doing made himself the continuator of Lord Kelvin's own achievements and the amplifier—indeed the fulfiller, in some respects—of Lord Kelvin's inspired predictions.

As in Lord Kelvin's case, Monsieur Blondel's signal service to applied science has won for him world-wide recognition. Far beyond the boundaries of France, which he has served so well, the followers of engineering science have acclaimed his merits and rejoiced to do him honour. Awards and recognitions on both sides of the Atlantic have been heaped upon the eminent head of the great Department of Ponts et Chaussées—a member of the French Institute of Science; five times its Laureate; President of the French Society of

Electricians; the erudite Professor of Applied Electricity; the brilliant Officer of the Legion of Honour. The unanimous testimony of his own countrymen has been re-echoed and endorsed by all in every nation who are cognisant of his work and capable of appreciating it. They say "Monsieur "Blondel has rendered services of the highest value to the "progress of science and the electrical arts, and particularly in "respect of instruments for registering the undulations of "alternating currents and of arc lamps with metallic electrodes "and for controlling the distribution and the measurement of "light and illumination; in respect of the mathematical theory "of alternating current machines and of the mathematical "theory of systems of transmission and distribution of energy." Your Excellency, these words might have been said by an English, or perhaps rather a Scottish, society of engineers as a resolution in praise of Lord Kelvin. What more fitting, then, that we should to-day ask you in our name to place in the hands of Monsieur Blondel this Kelvin Medal, with the cordial and admiring appreciation of his British colleagues and the sincere good wishes of this assembly for his restored health and his continued happiness, which to him means usefulness? (*Applause.*)

On the apex of the pyramid of wreaths and garlands already heaped up in his honour we desire to lay this our latest tribute, not because we are afraid of its being crushed under the already accumulated mass, but because we are convinced it is beyond cavil his due, and because we are persuaded he will value it for the name it bears, a name he will assuredly cherish and value no less than we do, the revered name of Lord Kelvin.

Your Excellency, will you at the same time accept for your nation, of which Monsieur Blondel is so great an ornament, our tribute of sincere admiration for its devotion to the progress of applied science for the good of all, and in particular of that branch of applied science to which you happily and significantly associate the name of "Génie." (*Applause.*)

Sir Donald MacAlister then, amid applause, handed the Medal to His Excellency the French Ambassador.

HIS EXCELLENCY THE FRENCH AMBASSADOR (M. A. de Fleuriau): Mr. President, Sir Donald MacAlister, Ladies and Gentlemen: I regret very much that I am not accompanied here to-day by Monsieur Blondel, who could have expressed his thanks to you far better than I can, and who could, far better than myself, have spoken to you of Lord Kelvin. But I deem it a very great honour to have received this Medal for transmission to him.

Lord Kelvin is very famous and very respected in my country. We are very proud to know that for a time, when he was a young man, he came to Paris and worked in a laboratory there before going to Glasgow, where he had such a very long association with the University, the present Chancellor of which is present here to-day. That University was indeed fortunate to have for so many years the services of such an eminent man. I am not competent to speak of the scientific achievements of Lord Kelvin, but we can all appreciate his practical discoveries and inventions, both in telegraphy and for the service of navigation and nautical science. We all know Lord Kelvin's compass very well, the Thomson compass. Though I am not a mariner myself, it so happens that I have passed my examinations as a master mariner. (*Applause.*) I can appreciate, therefore, how useful his instruments have been in practice. I dare say they have been the means of saving many lives.

While speaking of Lord Kelvin, perhaps you will allow me to read the end of a letter written to me by Monsieur Blondel, who says: "In France we have a very respectful and high admiration for the eminent achievements and the very high character of Lord Kelvin. The electricians of my generation have all been educated in these feelings, and we place Lord Kelvin in the same rank as Maxwell and Hertz, amongst the great creators of the new ways opened by

science to technicians during the last seventy years. That is why the attribution to a Frenchman of the Kelvin Medal is considered in France as a great honour paid to our country, and French engineers are very grateful to their colleagues on the other side of the Channel. I myself," he adds, "am a humble disciple of Lord Kelvin." (*Applause.*)

I desire to thank Sir Donald MacAlister for the kind words he has said as a Scotsman, as a citizen of the only country in the world—the only old country, at least—which has never been at war with France. (*Laughter.*) And I thank you, gentlemen, for this new evidence you have given of your very broad spirit, the true scientific spirit which crosses frontiers to try to find the great scientists and to give them recognition of their work. I thank you very much for what you have said of my country, where we appreciate and are very grateful for such recognition of our people. We even have to confess that sometimes you have recognized them before we did. (*Laughter.*) That is something which we hope will not happen again, but it is a lesson for which I thank you. (*Applause.*)

Sir WILLIAM H. ELLIS, G.B.E. (Past-President of the Institution of Civil Engineers): Mr. President: I think we shall all wish to offer a few words of thanks to Sir Donald MacAlister for coming south especially on our behalf and on behalf of the Committee to take such a prominent part, and to take it so efficiently, in our little ceremony. We appreciate very much, Sir Donald, your realization of the way we wished you to approach this matter, and we are indebted to you for the care you have taken in preparing your remarks for us this afternoon, giving us information which it would have been very difficult for us to obtain in any other manner.

I think it might be of interest to His Excellency the French Ambassador to recall the fact that three years ago in this Hall, when our dear old colleague, Sir Charles Parsons, was similarly honoured, we had the honour of the presence of

the Italian Ambassador, for on the same occasion Senator Marconi delivered a very important lecture before the Institution of Civil Engineers. I hope, Gentlemen, that, as it has happened twice, it may become a hardy triennial for this Institution to be honoured by the presence of an Ambassador from the different countries which in turn the Committee may see their way to honour for the distinction of their citizens in scientific research. (*Applause.*)

Speeches of an important nature have been made this afternoon. I only want to assure Sir Donald MacAlister, on behalf of this meeting, that we do warmly appreciate his presence to-day and the very full way in which he has dealt with the matter entrusted to him. (*Applause.*)

Mr. R. D. MOORE (Past-President of the Institution of Engineers and Shipbuilders in Scotland): As one of the adjudicators present when the Kelvin Medal award was made, this further duty of seconding the vote of thanks so ably proposed by Sir William Ellis to Sir Donald MacAlister falls to me. It may further show my fitness for this duty to say that fifty years ago I matriculated at Glasgow University, and for two years I was a student under Lord Kelvin, then Sir William Thomson. The Committee charged with awarding the Kelvin Medal felt that in view of the long connection of Lord Kelvin with Glasgow University, and the close association of Sir Donald with him there, it was most appropriate that Sir Donald should make this presentation. (*Applause.*)

Sir Donald, as you have been told, has recently demitted office as Principal of Glasgow University, where for twenty-two years under his wise guidance and energetic zeal the affairs of the University have abundantly prospered. His many friends and admirers regret extremely that he has had to relinquish the post of Principal, but, the opportunity arising, they are proud and glad that he has been offered, and has accepted, the high office of Chancellor of the University, thus following,

as has been pointed out, and worthily following, Lord Kelvin, who was similarly honoured in his day.

We have listened appreciatively, I know, to Sir Donald's oration, and I ask you to accord him a most cordial vote of thanks. (*Applause.*)

The vote of thanks was carried by acclamation.

Sir DONALD MACALISTER: Members of the Institution of Civil Engineers and friends: I somehow feel as though I were not among you altogether as a stranger, because I have always regarded myself as a sort of "stickit" engineer, seeing that I obtained a Whitworth Exhibition among the first, though I did not follow it up. Of late years I have been honoured by being made a member of the Institution of Engineers and Shipbuilders in Scotland. You have made me feel at home, and I hope you will ask me again. (*Applause.*)

The proceedings then terminated.